Physical Review D - Particles, Fields, Gravitation and Cosmology 2008 vol.77 N8

# Vacuum energy of a spherical plasma shell

Bordag M., Khusnutdinov N.
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

## Abstract

We consider the vacuum energy of the electromagnetic field interacting with a spherical plasma shell together with a model for the classical motion of the shell. We calculate the heat kernel coefficients, especially that for the TM mode, and carry out the renormalization by redefining the parameters of the classical model. It turns out that this is possible and results in a model which, in the limit of the plasma shell becoming an ideal conductor, reproduces the vacuum energy found by Boyer in 1968. © 2008 The American Physical Society.

http://dx.doi.org/10.1103/PhysRevD.77.085026